

<b>Project Number:</b>	<b>Shop/Operation:</b>
<b>Project Title:</b> Purchase Antifreeze Recycling Units	
<b>Current Practice and Baseline:</b>	
<p><b>New Process:</b></p> <p>Facilities should purchase units that can simultaneously filter fluid and flush cooling systems of automobiles and small trucks and equipment and return the antifreeze to the equipment. An antifreeze recycling system should be purchased for each building and shop currently generating waste antifreeze.</p> <p>Several reclamation systems are currently available for on-site recycling of waste antifreeze. Currently, there are two military-approved recycling processes: one uses ion exchange and the other uses vacuum distillation as the primary separation/purification process. These processes filter solids from the spent antifreeze and remove the metal ion contaminants from the solution. The recovered coolant solution often requires blending with an inhibitor package to restore it to its initial state. The two DoD-approved recycling systems work with either ethylene glycol or propylene glycol, but each must be processed separately. These systems are relatively simple to operate, compact (~4' x 4'), portable (on wheels or can be mounted on a trailer or truck), and easy to maintain.</p> <p>The distillation system produces the larger quantity of waste residue. Residue production is approximately 3 gallons of residue per 75 gallons of spent antifreeze. This residue is probably a hazardous waste since lead contamination is often greater than 5 ppm, but only a Toxicity Characteristics Leaching Procedure [TCLP] analysis can determine whether the waste has this hazardous characteristic. The manufacturer of a unit of this type claims that a batch of accumulated residue can itself be processed to further reduce the total volume of waste produced.</p> <p>The ion exchange unit does not produce any liquid hazardous waste residue; however, it does require filter replacement. Spent filters accumulate metals and may be considered hazardous waste if disposed. Once the ion exchange filters are spent, they must be shipped back to the manufacturer for regeneration. The spent filters are not generally treated as a hazardous waste since they are re-used after regeneration and are not disposed. This system is recommended.</p>	
<p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• Reduces purchase costs of new antifreeze</li> <li>• Reduces disposal costs of waste antifreeze</li> <li>• Reduces hazardous waste disposal volumes</li> </ul>	
<b>Potential Mission Impacts/TO Requirements:</b>	
<b>Goal:</b> Hazardous Waste Reduction	

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<b>Assumptions Used in Economic Analysis:</b> Cost of ethylene glycol (NSN 6850-00-664-1409): Gallons of antifreeze the shop currently uses per year: One gallon of waste antifreeze weighs 8.8 lbs Antifreeze is mixed 50/50 with water, so for every gallon of fresh antifreeze there are two gallons of waste Cost of waste antifreeze disposal: Cost of operating antifreeze recycler:		
<b>Annual Cost Of Current Practice:</b> Materials:  Waste:  TOTAL:	<b>Capital Project Costs:</b>  Equipment:  TOTAL:	<b>Annual Project Costs:</b>  Materials:  TOTAL:
<b>Expected Annual Savings:</b>		<b>Payback:</b>
<b>Vendor Information/Implementation Assistance:</b> Finish-Thompson, 921 Greengarden Road, Erie, PA 16501-1591, (800) 934-9384 GSA #: GS-07F-9999H <ul style="list-style-type: none"> <li>Model PBER002 (15 gal capacity): \$4,825.61 (DoD-approved)</li> <li>Model PBER005 (55 gal capacity): \$11,152.18</li> <li>Model BE-15C Antifreeze Recycler (15-gal.)(NSN 4250-01-387-5654): \$6,180</li> <li>Model BE-55C Antifreeze Recycler (55-gal.)(NSN 4250-01-387-2551): \$13,490</li> </ul> FPPF Chemical Company, Inc., 117 W. Tupper Street, Buffalo, NY 14201, (800) 735-3773 GSA #: GS-07F-1670 <ul style="list-style-type: none"> <li>Model ARS 18 (18 gal portable recycler): \$1,845.77</li> <li>Model ARS 100 (100 gal capability): \$2,841.25</li> </ul> Hi-Tech Industries, Inc., 17029 Devonshire St. #124, Northridge, CA 91325, (818) 993-9960 GSA #: GS-07F-0044H <ul style="list-style-type: none"> <li>Model ARU-1 (NSN 4330-01-387-1365): \$1,608.77</li> </ul> Industrial Air of Texas, 3605 S. Cooper, Arlington, TX 76015, (817) 465-8545 or (800) 531-9656 <ul style="list-style-type: none"> <li>Model 87500 (NSN 4330-01-387-1375): \$1,942.84</li> </ul>		

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<b>Vendor Information/Implementation Assistance Continued:</b> <p>K. Fawley Enterprises (KFM), 11890 Old Baltimore Pike, Suite F, Beltsville, MD 20705, (800) 736-1404 or (301) 931-1300</p> <ul style="list-style-type: none"> <li>Model CC-1 ULG Cool'r Clean'r (NSN 4250-01-380-9047): \$9,130</li> <li>Model CC-2 ULG Cool'r Clean'r (NSN 4250-01-380-9034): \$10,660 * (\$10,130 in FY99)</li> <li>Model CC-1 ULG-E Cool'r (NSN 4250-01-390-4379): \$10,170</li> <li>Model CC-2 ULG-E Cool'r (NSN 4250-01-390-4378): \$15,790</li> </ul> <p>Kleer-Flo Company, 15151 Technology Dr., Eden Prairie, MN 55344, (612) 934-2555 or (800) 328-7942, GSA #: GS-07F-0069H</p> <ul style="list-style-type: none"> <li>Model AF250 (antifreeze recycler): \$2,396</li> <li>Model AF250X (antifreeze recycler + starter package): \$3,120</li> </ul> <p>SPX Corp. (formerly Kent-Moore), 28635 Mound Rd., Warren, MI 48092, (810) 578-7290</p> <ul style="list-style-type: none"> <li>Model 75300 (cart-style): \$ 2,667.60</li> <li>Model 75400: \$5,530.14</li> </ul> <p>* Used in economic analysis</p>					
<b>Total Score:</b>	<b>Goals:</b>	<b>Env Impact:</b>	<b>Compliance:</b>	<b>Tech Feas:</b>	<b>Cost:</b>
<b>Recommended Action Plan:</b>					
<b>Activity</b>				<b>OPR</b>	<b>Completion Date</b>
1. Request specifications on recycling equipment from manufacturers.					
2. Determine locations and units responsible for operating recycling equipment.					
3. Prepare procurement requests for recycling equipment.					
4. Install equipment.					
5. Train personnel on operation and maintenance requirements.					
6. Monitor operation and performance of equipment.					